

Amendments to the Specification are as follows:

Please amend the paragraph on page 12, lines 18-26 as follows:

(Amended) The nonmagnetic protective layer is preferably deposited to a thickness of 3 Å to 10 Å so that oxidation of the lower antiferromagnetic layer can be prevented, and the nonmagnetic protective layer can easily be removed. The nonmagnetic protective layer is preferably controlled to a thickness of 3 Å or less by low-energy ion milling. In this case, the lower and upper antiferromagnetic layers are coupled with each other through the nonmagnetic protective layer to function as an antiferromagnetic layer as a unit.

Please amend the paragraph on page 30, lines 2-10 as follows:

(Amended) In the reactive ion etching step, the portions shown by dotted lines in Fig. 8 are moved to form a recess β . Namely, the ferromagnetic layer 12 and the second antiferromagnetic layer 14 are present only on both side portions 11b of the free magnetic layer 11. Therefore, the track width Tw is regulated by the distance between the second antiferromagnetic layers 14 in the track width direction, and the dimension FL of the ferromagnetic layers 12 in the track width direction is regulated.

Please amend the paragraph on page 30, lines 11-18 as follows:

(Amended) In this embodiment, the ratio (FW/FL) of the dimension FW of the free magnetic layer 11 in the track width direction to the dimension FL of the ferromagnetic layers 12 in the track width direction is set to 1.1 to 2.0 so as to appropriately pin magnetization of each side portion 11b of the free magnetic layer 11 and facilitate magnetization rotation of the central portion 11a with the external magnetic field.

Please amend the paragraph beginning on page 36, line 21 and ending on page 37, line 4 as follows:

(Amended) Then, the first and second electrode layers 21 and 22 are formed, and then the upper antiferromagnetic layer 14b, the nonmagnetic protective layer 15, the lower antiferromagnetic layer 14a, the ferromagnetic

layer 12 and the nonmagnetic layer 13 are removed from the track width region by the same steps as those (Fig. 6 to 8) in the first embodiment. As a result, the track width T_w is regulated by the distance between the upper antiferromagnetic layers 14b, the nonmagnetic protective layers 15 and the lower antiferromagnetic layers 14a, and the dimension FL of the ferromagnetic layers 12 in the track width direction is regulated.

Please amend the paragraph on page 39, lines 2-24 as follows:

(Amended) In the present invention, at least a free magnetic layer, a ~~non-magnetic~~non-magnetic layer and a ferromagnetic layer are formed to have continuous end surfaces at both sides in the track width direction, and thus magnetostatic coupling occurs between the free magnetic layer and the ferromagnetic layer at both end surfaces. Therefore, the influence of a demagnetizing field applied to the free magnetic layer and the ferromagnetic layer can be decreased by the magnetostatic coupling. Thus, even when the dimension of the free magnetic layer in the track width direction is decreased for realizing a narrower track, a disturbance of magnetization within the track width region can be suppressed to improve output sensitivity. Also, in the present invention, the ratio (FW/FL) of the dimension of the free magnetic layer to the dimension of the ferromagnetic layer in the track width direction is regulated to 1.1 to 2.0, and thus the output sensitivity can be improved while sufficiently suppressing a distortion and instability of a reproduction waveform. Furthermore, in the present invention, the sensing current is supplied without passing through a second antiferromagnetic layer having high resistivity, and thus the element resistance can be sufficiently decreased, thereby suppressing high-frequency noise and improving the SN ratio.

Please amend the Abstract of the Disclosure as follows:

(Amended) ABSTRACT OF THE DISCLOSURE

A giant magnetoresistive (GMR) element includes a first antiferromagnetic layer, a pinned magnetic layer ~~in which the~~having a magnetization direction ~~is pinned by the first antiferromagnetic layer, a nonmagnetic material layer, a free magnetic layer in which that the~~having a magnetization direction ~~of~~with a central portion ~~changing~~sing with an external

magnetic field, a nonmagnetic layer, ferromagnetic layers formed on both sides ~~portions~~ of the nonmagnetic layer, and second antiferromagnetic layers for aligning the magnetization direction of each ~~the~~ ferromagnetic layers ~~in a direction perpendicular to the magnetization direction~~ that of the pinned magnetic layer. ~~In the GMR element, t~~ The magnetization directions of the free magnetic layer ~~and the ferromagnetic layers are antiparallel to each other through the nonmagnetic layer, and a.~~ At least the free magnetic layer, the nonmagnetic layers and the ferromagnetic layers have continuous surfaces α at both end surfaces in the track width direction. Furthermore, f First electrode layers are provided in contact with the continuous surfaces α , and second electrode layers are provided on the first electrode layers and the second antiferromagnetic layers.